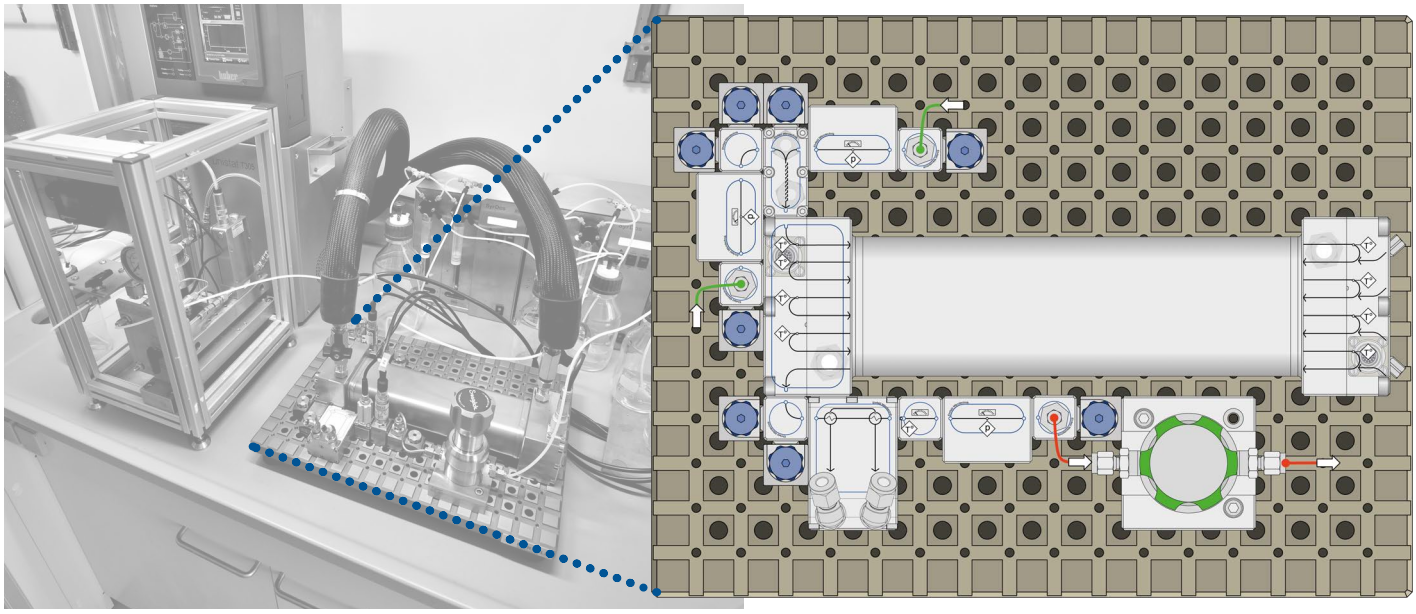
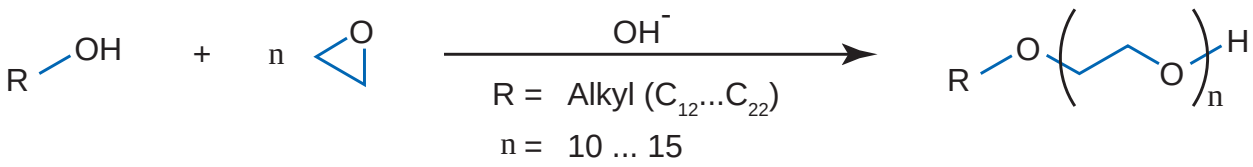
System Solution: Miprowa® Lab

Typical reactions : ethoxylation, peroxide reactions, diazotization, nitration, etc.

Based on our experiences with a large number of different customer projects over many years we have come up with several reactor set-ups combining specific reactors from our portfolio with suitable pumps and other peripherals. These equipment combinations have already proven their usefulness in the field for certain types of reactions and are optimized for customer benefit. For applications like ethoxylations, peroxide reactions, diazitizations and nitrations the challenges lie in very high reaction enthalpies, and process safety due to the chemicals involved.



Example: Ethoxylation of fatty alcohols



Operating conditions:

- ✓ Throughput: 4 ... 10 g/min
- ✓ Viscosity: up to 100 mPas
- ✓ Pressure: up to 55 bar
- ✓ Temperature: up to 180 °C

Reference:

Process for preparing polyether alcohols

Patent: EP 2603543 B1

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Our Process Development Team say:

Ethylene oxide (EO) can be used liquified.

Fast screening of reactions parameters because residence times are short.

Small reactor volumes allow for high pressures and temperatures.

High degree of automation leads to high process safety.

The feed of the reactants is of critical importance. Reliable pumps are the key to success.

Technical Specifications	
Typical reactions	ethoxylation, peroxide reactions, diazotization, nitration
Temperature range	-10 ... 200 °C
Pressure limit	45 ... 75 bar
Reactor volume	30 mL
Volume flow	3 ... 90 mL/min
Residence time	20 s ... 10 min
Media-wetted materials	Hastelloy® C22/C276, Alloy 625, Stainless Steel 316, FFKM

Ehrfeld Mikrotechnik GmbH • Mikroforum Ring 1 • 55234 Wendelsheim
Germany • www.ehrfeld.com • info@ehrfeld.com • +49 6734 91546-0

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